RESEARCH DETAIL

3D SMART DRESSING FITTING ROOM

An application that enables personalised virtual clothing changes

PROJECT OVERVIEW

- **Weather-adaptive clothing selection:** It tackles the challenges of dressing appropriately for diverse weather conditions across different seasons, cities, and climate types, assisting users in making suitable clothing choices for travel.
- **Personalized outfit recommendations:** The app provides personalized fashion suggestions based on individual preferences and trends, enabling users to select attire aligned with their style and needs.
- **Virtual fitting experience:** By integrating 3D user modeling and VR technology, the app allows users to virtually try on clothing, enhancing the online shopping experience and satisfaction.

PROJECT BACKGROUND

- With the popularity of travelling on business trips and other off-site trips, as well as modern people's pursuit of fashion and aesthetics, there are more and more types of clothing, so in our daily life, we are increasingly demanding that the clothing match the adaptability to the weather and the aesthetics based on the fashion trend.

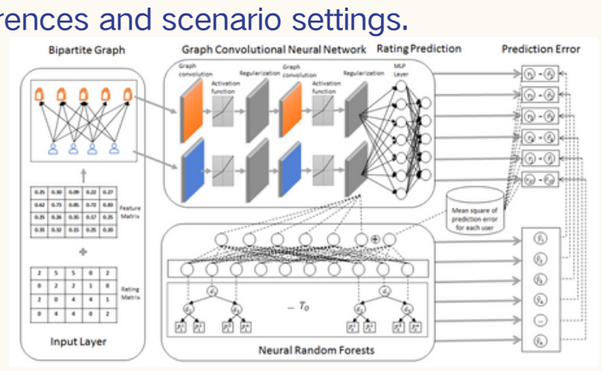
PROBLEM TO SOLVE

- In order to help users solve their problems and minimise the inconvenience caused by weather and climate, we have designed a scientifically reliable and customised smart recommendation programme based on meteorological reasons such as temperature, humidity and type of climate, which is personalised by an intelligent system based on real-time feedback from the user.

SOLUTION APPROACH

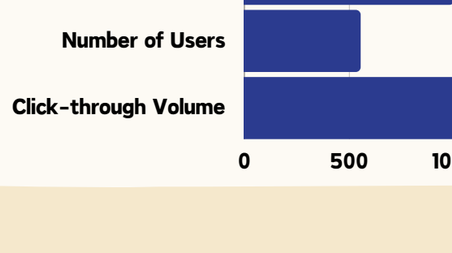
RECOMMENDATION SYSTEM

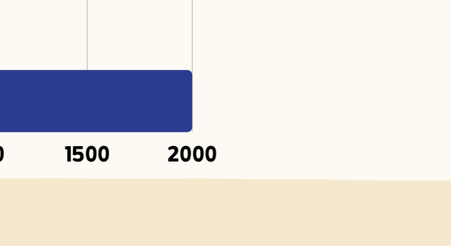
- Employing machine learning algorithms to provide personalized outfit recommendations based on meteorological factors such as temperature, humidity, and climate types, along with user preferences and scenario settings.



VIRTUAL FITTING

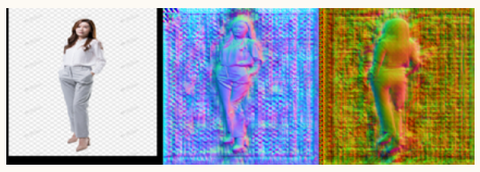
- Combining Virtual Reality (VR) technology to allow users to try on clothing in a virtual environment, offering an immersive experience.
- Implementing a human-computer interaction module for role selection and scene switching in VR scenarios.

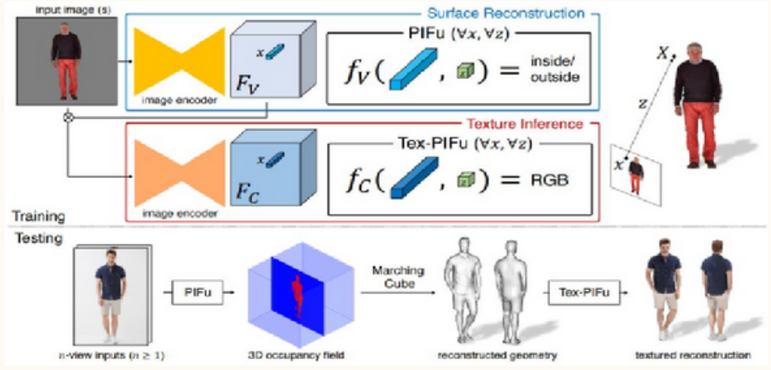




3D MODELING

- Utilizing encoder-decoder networks to extract three-dimensional vertices and color information from 2D images for three-dimensional facial reconstruction.
- Integrating Deepfake technology and user-provided body data to establish full-body 3D models.





USER INTERFACE

CITATION

1.Marcel Nassar. (2018). Hierarchical Bipartite Graph Convolution Networks. arXiv: 1812.03813 [cs.LG].

2.S. Saito et al., "PIFu: Pixel-Aligned Implicit Function for High-Resolution Clothed Human Digitization," 2019 IEEE/CVF International Conference on Computer Vision (ICCV), Seoul, Korea (South), 2019, pp. 2304-2314.

PROJECT OUTCOMES

CONCLUSION

The development of a multifunctional app for weather-based intelligent clothing recommendations has been successfully completed. The app integrates personalized outfit suggestions, virtual fitting rooms, community interaction, and online shopping. The app achieves 3D model construction based on user facial and body data, and provides intelligent outfit recommendations using data such as location, season, and weather, offering a near-realistic virtual fitting experience.

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